Claims

What is claimed is:

1. A device for facilitating aligning an x-ray optic with a source of x-rays, the device comprising:

a housing having a first aperture adapted to receive the x-ray optic;

a surface positioned within the housing from which fluorescence occurs when x-rays directed by the x-ray optic impinge upon the surface; and

wherein the housing with the x-ray optic is positionable relative to the source of x-rays, and wherein alignment is facilitated by monitoring fluorescence from the surface while moving the housing relative to the source of x-rays.

2. The device as recited in claim 1, wherein the housing further comprises a second aperture through which fluorescence from the surface can be monitored.

3. The device as recited in claim 2, wherein the second aperture comprises an x-ray impermeable window.

4. The device as recited in claim 1, further comprising means for moving the surface relative to the x-ray optic.

5. The device as recited in claim 4, wherein the means for moving the surface comprises a threaded rod threaded to the housing and operatively connected to the surface.

6. The device as recited in claim 1, wherein the housing is a cylindrical housing.

7. The device as recited in claim 1, further comprising means for monitoring fluorescence from the surface.

8. The device as recited in claim 7, wherein the means for monitoring fluorescence from the surface comprises one of a camera and a CCD device

9. The device as recited in claim 1, further comprising means for magnifying fluorescence from the surface.

10. The device as recited in claim 1, wherein the x-ray optic comprises one of a monocapillary optic, a polycapillary optic, a crystal optic, replicated optic, and a multilayer crystal optic.

11. A device for facilitating determining a focusing characteristic of an x-ray optic, the optic being provided with a source of x-rays, the device comprising:

a housing having a first aperture adapted to receive the x-ray optic;

a surface positioned within the housing from which fluorescence occurs when x-rays directed by the x-ray optic impinge upon the surface; and

means for moving at least one of the x-ray optic and the surface, wherein fluorescence from the surface can be varied to facilitate determining the focusing characteristic of the x-ray optic.

12. The device as recited in claim 11, wherein the focusing characteristic of the x-ray optic comprises a focal length of the x-ray optic and wherein the means for moving at least one of the x-ray optic and the surface comprises means for minimizing size of fluorescence from the surface.

13. The device as recited in claim 11, wherein the focusing characteristic of the x-ray optic comprises a shape of the focused x-ray beam and wherein the means for moving at least one of the x-ray optic and the surface comprises means for varying size of fluorescence from the surface.

14. The device as recited in claim 11, wherein the means for moving at least one of the x-ray optic and the surface comprises means for moving the surface.

15. The device as recited in claim 14, wherein the means for moving the surface comprises a threaded rod threaded to the housing and operatively connected to the surface.

16. The device as recited in claim 11, wherein the housing comprises a second aperture through which fluorescence from the surface can be detected.

17. The device as recited in claim 16, wherein the second aperture comprises an x-ray impermeable window.

18. The device as recited in claim 11, wherein the housing comprises a cylindrical housing.

19. The device as recited in claim 11, further comprising means for monitoring fluorescence from the surface.

20. The device as recited in claim 19, wherein the means for monitoring fluorescence comprises one of a camera and a CCD device.

21. The device as recited in claim 11, further comprising means for magnifying fluorescence from the surface.

22. The device as recited in claim 11, further comprising a graduated scale for determining location of the surface relative to the x-ray optic.

23. The device as recited in claim 11, wherein the x-ray optic comprises one of a monocapillary optic, a polycapillary optic, a crystal optic, replicated optic, and a multilayer crystal optic.

24. A method for facilitating aligning an x-ray optic with a source of x-rays using a device comprising a housing having a first aperture and a surface positioned within the housing from which fluorescence occurs when x-rays impinge upon the surface, the method comprising:

disposing the x-ray optic in the first aperture with the output of the x-ray optic directed toward the surface; and

moving the housing with the x-ray optic relative to the source of x-rays while monitoring fluorescence from the surface to facilitate aligning the x-ray optic with the source of x-rays.

25. The method as recited in claim 24, wherein the housing comprises a second aperture, and monitoring fluorescence comprises monitoring fluorescence from the surface through the second aperture.

26. The method as recited in claim 24, wherein monitoring the fluorescence comprises one of visually monitoring and automatedly monitoring fluorescence from the surface.

27. The method as recited in claim 24, further comprising moving the surface relative to the optic to vary fluorescence from the surface.

28. The method as recited in claim 24, wherein the x-ray optic comprises one of a monocapillary optic, a polycapillary optic, a crystal optic, replicated optic, and a multilayer crystal optic.

29. A method for facilitating determining a focusing characteristic of an x-ray optic, the optic being provided with a source of rays, using a device comprising a housing having a first aperture and a surface positioned within the housing from which fluorescence occurs when x-rays impinge upon the surface, the method comprising:

disposing the x-ray optic in the first aperture with the output of the x-ray optic directed toward the surface; and

moving at least one of the x-ray optic and the surface wherein fluorescence from the surface can be varied to facilitate determining the focusing characteristic of the x-ray optic.

30. The method as recited in claim 29, wherein the focusing characteristic comprises a focal length of the x-ray optic and wherein moving at least one of the x-ray optic and the surface minimizes size of fluorescence to facilitate determining the focal length of the x-ray optic.

31. The method as recited in claim 29, wherein the focusing characteristic comprises a shape of an x-ray beam produced by the x-ray optic and wherein moving at least one of the x-ray optic and the surface varies the size of fluorescence to facilitate determining the shape of the x-ray beam produced by the x-ray optic.

32. The method as recited in claim 29, wherein the surface is moveable and wherein said moving at least one of the x-ray optic and the surface comprises moving the surface relative to the x-ray optic.

33. The method as recited in claim 32, wherein the moveable surface is mounted on a rod threaded into the housing and wherein moving the surface comprises rotating the threaded rod.

34. The method as recited in claim 29, further comprising monitoring fluorescence from the surface.

35. The method as recited in claim 34, wherein the housing comprises a second aperture, and wherein monitoring fluorescence comprises monitoring fluorescence through the second aperture.

36. The method as recited in claim 34, wherein monitoring fluorescence comprises one of visually monitoring and automatedly monitoring fluorescence.

37. The method as recited in claim 29, wherein the x-ray optic comprises one of a monocapillary optic, a polycapillary optic, a crystal optic, replicated optic, and a multilayer crystal optic.

38. The device as recited in claim 1, wherein the device is constructed to minimize emission of x-rays from the device.

39. The device as recited in claim 11, wherein the device is constructed to minimize emission of x-rays from the device.

40. The method as recited in claim 24, wherein the method is practiced wherein emission of x-rays from the device is minimized.

41. The method as recited in claim 29, wherein the method is practiced wherein emission of x-rays from the device is minimized.

42. The device as recited in claim 1, wherein the housing contains one of an inert gas and a vacuum.

43. The device as recited in claim 11, wherein the housing contains one of an inert gas and a vacuum.

44. The method as recited in claim 24, wherein the method further comprises providing one of an inert gas and vacuum to the housing.

45. The method as recited in claim 29, wherein the method further comprises providing one of an inert gas and vacuum to the housing.

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